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U.S. DEPARTMENT OF THE INTERIOR
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TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR – BUREAU OF LAND MANAGEMENT

ANTELOPE PASSES THEIR VALUE AND USE

Raymond D. Mapston
Casper District

Rex S. ZoBell
Wyoming State Office

I. Introduction

Fencing is often an essential tool in achieving land management objectives. Fences preventing antelope from reaching essential habitat components are detrimental to the pronghorn's welfare. Antelope passage should be provided through fences constructed on antelope range. A pass structure developed in Wyoming is one method to facilitate antelope movement. Guidelines concerning antelope pass use are provided herein.

II. Background

Controversy has focused upon the effects of net-wire fencing, although some barbed-wire fences also cause serious problems for antelope. Since the early 1950's, studies have been conducted to provide solutions to the problem of fencing on antelope range (Cole, 1956; Rouse, 1954; Spillett, et al., 1967).

A study conducted in Wyoming's Red Desert by Spillett (1965) found that under controlled conditions a majority of antelope crossed standard cattleguards and simulated cattleguard devices. Since that time extensive field trials of pass structures have been conducted in New Mexico, Colorado and Wyoming. Various sized passes and different methods of installation have been tested. The willingness, capability, and learning ability of antelope to cross the structures were evaluated along with their effectiveness in holding livestock. These studies show that when pass structures are properly located and installed, antelope will use them.

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III. Antelope Use of Passes

Wyoming antelope studies have documented over four hundred observations of antelope using passes. A substantial number of fawns are included within these observations. Antelope regularly use two experimental passes on the Casper District (Mapston, 1970; Pate, 1969). See Fig. 1. The youngest fawns observed crossing passes were one month old. On the Worland District a herd of fifty antelope was seen crossing a test pass in rapid succession (Mapston, 1968). Wyoming studies show that antelope are using standard cattleguards (Pate, 1969; ZoBell, 1968). Pass structures in Colorado and New Mexico are also crossed by antelope (Bear, 1969; Kerr, 1968).

Antelope will cross through openings four feet wide, but structures with wider openings are more readily located and crossed. Larger openings are more easily distinguished as a passageway and appear less restrictive. Antelope are good broad jumpers and can easily leap over six-foot grills. They will use the BLM standard specification pass (4' x 6'), but wider passes are more effective.

Although antelope have an innate jumping ability, using this skill to jump passes must be learned. Adjustment through learning by experience and association are considered to be important factors in the long-run effectiveness of pass structures. Thus, immediate use by antelope should not be anticipated. Considerable time may be required before significant antelope use is obtained.

IV. Pass Size and Construction

Grills with a jumping distance of six feet confine livestock effectively and are crossed by antelope. Thus, six feet is considered to be the optimum grill length (jumping distance). In most cases a four-foot opening is not wide enough to obtain maximum use by antelope. Since the lightweight grills are not sturdy enough to support vehicles, pass width should be limited to 5½ feet to discourage vehicle use.

The recommended 5½ x 6-foot grill is easy to construct (Fig. 2). Thirteen 5½-foot bars consisting of pipe or angle iron are welded parallel on six-inch centers to steel supports. Anchor plates at each corner provide for attachment to timbers or other support. Cost of the structure averages less than $100 per unit when purchased in lots of ten. Two men can install a structure in less than ½ day.

V. Installation

The most desirable installation method is to place the grill on 10-inch timbers over a 15-inch pit and construct earth ramps on each end of the grill (Fig. 2). Natural appearing approaches are essential to obtain

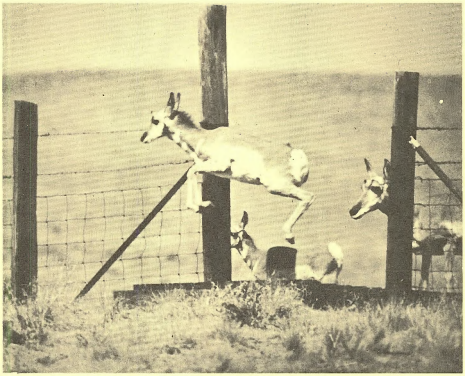

Figure 1. Fawn antelope crossing an antelope pass. Also shown is a simple method of bracing using wooden posts on each side of the grill supplemented by steel post braces.

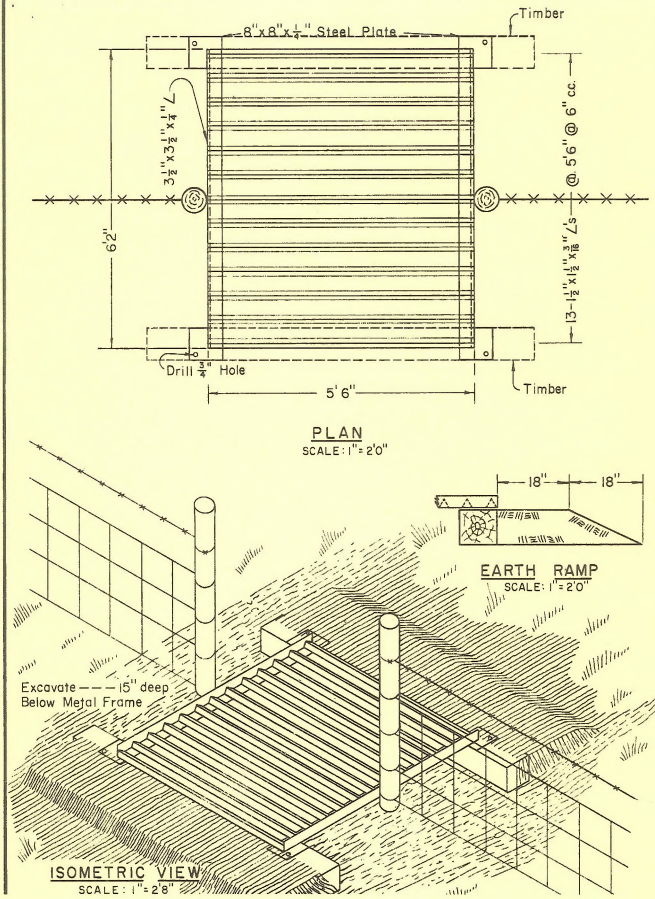

Figure 2. Antelope pass specification and recommended method of installation

antelope use. The ramps should be level with the grill for 18 inches and then tapered off to ground level no less than 36 inches from the timbers. Snow presents little problem since the grill is elevated far enough above the ground that wind helps clear it away. It may be necessary to clean out the pits occasionally in sandy areas.

The method of connecting the pass structure to the fence is important. Antelope are reluctant to cross passes which have extensive, unnatural braces. Braces and supporting wooden posts should be kept to a minimum. However, to keep from weakening the fence, proper bracing must be provided. Stress panels should be constructed on both sides of the pass, but, if possible, not closer than ten feet. Single wooden posts set to a 3-foot depth on both sides of the pass are effective.

Supplemental bracing, if needed, is easy to install. Steel posts attached to the wooden posts and secured to the ground provide satisfactory braces (Fig. 1). Figure 3 shows another effective method. In this case tightly twisted strands of wire are used to connect the wooden posts below the grill and at the top. When installed six feet above the grill, the upper wire presents no problem for antelope. With offset locations, (Fig. 6-8) steel posts driven upright on each side of the grill can be used instead of wooden posts. One additional post should be placed between the grill and the offset corners to maintain maximum fence tautness.

VI. Placement

The location and method of placement in the fence are major determinants of pass effectiveness. Locations for passes should be selected carefully. When a new fence is planned, pass locations should be selected before construction. The key to obtaining maximum use of passes is placing them where they can easily be found by antelope.

Fence corners are often effective locations since antelope are directed to corner passes by merging fences (Spillett, 1965; ZoBell, 1968). Passes should be installed in corners whenever possible. In many cases it is advisable to install the pass exactly in the corner as shown in Fig. 4 so antelope can see the opening when approaching along either fenceline. Corner locations have one disadvantage in that antelope outside the fence usually walk by the pass without locating the passageway.

Unless placed on a well-used trail, passes installed in line with the fence are of limited value. Antelope drifting along the fence often fail to see and utilize the opening. This type of installation may be effective once antelope discover the opening and learn to cross the structure. Comparable passes placed in fences around water developments receive heavy use. Pass effectiveness can be improved by installing a 30-yard fence wing (Fig. 5) to direct antelope toward it (Mapston, 1968). Artificial trails can also be constructed to lead antelope to the pass.

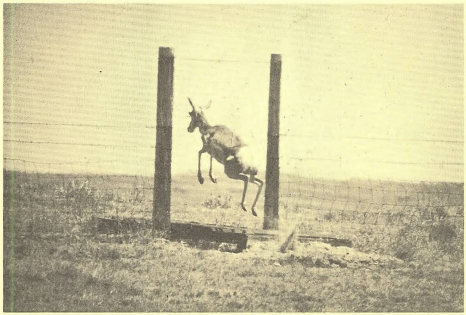

Figure 3. Braces and supporting wooden posts should be kept to a minimum. Here, tightly twisted strands of wire are used to connect the wooden posts below the grill and at the top.

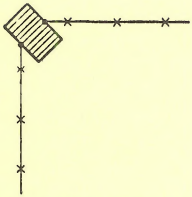

Figure 4. Recommended corner location

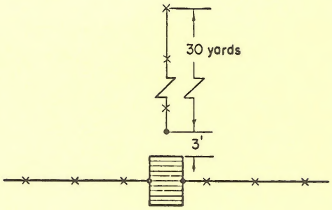

Figure 5. A fence wing to improve effectiveness of fenceline passes.

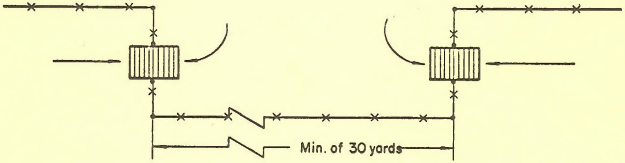

Figure 6. Method of installing paired offsets.

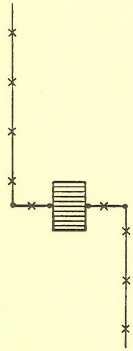

Figure 7. Offset pass installation.

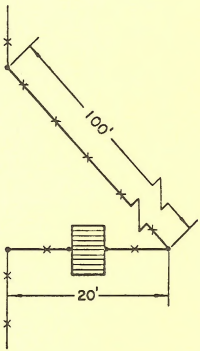

Figure 8. Optional offset pass installation.

Passes installed at right angle to the fence in offsets have also been tested (Fig. 7 and 8). Colorado and Wyoming studies show that offset locations are more effective than locations in line with the fence (Bear, 1969; Mapston et al., 1970). With offsets, antelope have a direct view of the pass opening when approaching along the fence. One problem with the offset location is that if antelope do not approach the structure from the proper direction, they will not encounter the offset. Thus, where antelope are likely to approach from either direction, offsets should be installed in pairs (Fig. 6).

When a fence extends for several miles without a corner, the need for passes becomes increasingly important. Corner passes are not effective for antelope approaching from outside the corner. Offset passes can be effectively used in conjunction with corner passes to enhance movement. When using the installation shown in Fig. 8, fence lines should veer to the offset for minimum distance of 100 feet or preferably longer. Veer distances of ¼ mile may be advisable when constructing new fence. The minimum recommended offset distance is 20 feet.

Topography influences placement of passes. Antelope normally use ridges or the base of hills for travel; during severe weather, they seek out low areas and move along protected drainages. This should be considered when determining pass locations. Low saddles are preferred travel routes during much of the year. Passes should be installed on level areas rather than slopes. Areas with high, dense brush should be avoided as well as locations which accumulate drifting snow.

VII. Determining Need for Passes

The need for passes will vary with each situation. In making this decision, the entire habitat complex should be evaluated. Reference to the wildlife intensive habitat inventory and unit resource analysis can be an important aid in these evaluations. Some important factors to consider are:

1) Type of fence involved
2) How long antelope have been exposed to fences
3) Existing fencing pattern
4) Pasture size
5) Water, forage and protective cover in the pasture involved
6) Climatic conditions
7) Seasonal or yearlong range
8) Past known movement

Studies show antelope possess an inherent learning ability to cross some fences, however, an adjustment period is required. Fence jumping ability varies from one antelope herd to another, depending upon the extent and duration of fencing. Antelope reared on fenced ranges cross fences more readily than animals confronted by the structures for the first time.

Where antelope are accustomed to fences, most will crawl under barbed-wire fences with the bottom wire more than 12 inches off the ground. Here passes should not be necessary. Net-wire fences often cause problems for antelope and installation of pass structures may be necessary.

The type of fence is an important consideration. Colorado and Wyoming studies indicate that most adult and yearling antelope will jump a 32-inch fence (Bear, 1969; Spillett et al., 1967). On many areas where antelope have been subjected to fences for a number of years, numerous adults and yearlings have demonstrated the capability to negotiate 36-inch fences (Mapston, 1970; Rouse, 1954). Some adults and a few yearlings will jump higher fences.

Most fawns demonstrate little willingness to jump any type of fence during the first four months of their lives (Bear, 1969). The physical development of fawns is rapid and when four months old, some are willing and able to negotiate 32-inch fences (Bear, 1969).

Prevailing climatic conditions and availability of water, forage and cover are the key factors influencing antelope movements. These same factors determine whether an area is seasonal or yearlong range. Where yearlong requirements are available in fenced pastures and climatic conditions favorable, antelope may be content to range over a few square miles. In this case passes are needed mainly for years of extreme drought or severe blizzards.

In some areas antelope summer at high elevations and during the late fall are forced by deep snow and weather conditions to move to lower ranges. Their survival in most years depends on freedom of movement. Although extent of movement varies from year to year, definite movement patterns can usually be defined. If fences are planned which intersect and impede seasonal movements, pass structures should be provided.

Pass structures are important in arid areas where extended droughts force antelope to move. During the summer months fawns are unwilling or unable to jump over fences, but can use pass structures.

VIII. Summary

Antelope passes, when properly located and installed, have value as a means of facilitating antelope movement through fences. The recommended pass structure consists of a 5½ x 6-foot grill installed on timbers over a 15-inch pit with earth ramps on each end. Regular cattleguards with a jumping distance no greater than 6 feet are equally effective. For maximum effectiveness, passes should be placed in fence corners or offsets, and supporting braces and structures kept to a minimum. Although antelope have an innate jumping ability, using this talent to leap over pass structures has to be learned. Considerable time may be required to obtain significant use by antelope.

Pass structures have limitations and should not be viewed as a substitute for fences that permit ready passage of antelope, nor responsible resource management decisions which weigh all objectives and alternatives, including whether or not to fence. Minimum effects on antelope can best be assured by minimizing the number of fences, avoiding use of net wire, keeping pastures large, limiting the fence height and installing the bottom wire as high as possible. Fencing projects should also be spaced over a long period of time to provide opportunity for antelope to adjust.

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